



GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- VII (New) EXAMINATION – WINTER 2019

Subject Code: 2173903

Date: 28/11/2019

Subject Name: Thin Film Technology

Time: 10:30 AM TO 01:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

			MARKS
Q.1*	(a)	What is Nucleation? Explain Its Type.	03
	(b)	Mention any Eight Applications of Thin Film in Defense.	04
	(c)	Write a short note on Thin Film and Describe its Nucleation and Growth, Lattice Matching and Mismatching (diagram).	07
Q.2	(a)	Define Two probe Method and Explain its Drawbacks.	03
	(b)	Draw Figure of MBE system with Notation.	04
	(c)	Explain Chemical Vapour Deposition and Sub Types (any 2) with necessary Diagrams.	07
		OR	
	(c)	Describe Sol-Gel Synthesis for Thin Films (Principle, Process, Advantages, Physics and Chemistry).	07
Q.3	(a)	Describe Magnetic Properties of Thin Films.	03
	(b)	Explain AFM for Thin film Characterization	04
	(c)	Explain Different Application of Thin Film in Medical Field.	07
		OR	
Q.3	(a)	How can you Characterize Electronic Properties of Thin Film? Mention any Two Electronic Application of Thin Films.	03
	(b)	Describe Optical Properties of Thin Film.	04
	(c)	Explain Physical Vapour Deposition and sub Types (any Two) with necessary Diagrams.	07
Q.4	(a)	What is Sputtering? Describe Its Type.	03
	(b)	Explain UV-Vis Spectroscopy for the Characterization of Thin Films.	04

	(c)	Write a Short note on XRD for Thin Film Characterization.	07
		OR	
Q.4	(a)	Define Cathodic Arc Deposition and Ion Implantation.	03
	(b)	Write down Full Form of RHEED. What is Effusive cell explain with diagram.	04
	(c)	Explain Role of Thin Films in Devices (Any Five).	07
Q.5	(a)	Write a Short note on SQUID.	03
	(b)	Elaborate Spin Coating and Dip Coating Technique with Parameters.	04
	(c)	Describe Four Probe Technique and Hence Resistivity Measurements.	07
		OR	
Q.5	(a)	Explain Profilometer.	03
	(b)	Explain How Thin Films can be used in Automobile Industries.	04
	(c)	Write a Short note on Pulsed Laser Deposition for Thin Film Deposition (Diagram).	07
